REMARKS

Claims 4, 5, and 7 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,186,928 to Karasawa ("Karasawa") in view of U.S. Patent No. 5,255,092 to Loonen ("Loonen").

Claim 6 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Karasawa in view of Loonen, and further in view of U.S. Patent No. 5,287,188 to Saeger ("Saeger").

Claims 1-3 have been previously canceled.

Claims 8 and 9 have been newly added.

Claims 4-9 remain pending.

Rejection of Claims 4, 5, and 7 under 35 U.S.C. §103(a)

With respect to claim 4, the Office Action States that Karasawa teaches all of Applicants' recited elements except reading a signal with a second frequency which is higher than the first frequency, which Loonen allegedly teaches.

Independent claim 4 has been amended to point out more clearly what Applicants regard as the invention. Support for the claim amendment can be found, at least, on page 20, line 12 to page 21, line 18 of the specification.

Specifically, Applicants' amended independent claim 4 recites an image pickup system for capturing the image of a subject. The system includes an image pickup element that constitutes one image-captured surface by arranging a plurality of scanning lines having a first number of pixels, wherein the image pickup element is provided in an endoscope. The system further includes a drive circuit for outputting, to the image pickup element, a drive signal with a first frequency for sequentially reading an image-captured signal image-captured on the image

captured surface of the image pickup element for every scanning line, wherein the drive circuit is provided in the endoscope. The system still further includes a line memory having a memory capacity, which can store one scanning line of image-captured signals read from the image pickup element, and an oscillator for generating a clock signal. The system yet further includes a frequency dividing circuit which divides the clock signal to generate a signal for the drive circuit which enables the drive circuit to generate the drive signal, wherein the frequency dividing circuit is provided in the endoscope. The system still further includes a writing signal generating circuit for outputting a writing signal with the first frequency to the line memory for writing the image-captured signal to the line memory, wherein the writing signal generating circuit generates the writing signal based on the signal generated by frequency dividing circuit. The system further includes a reading signal generating circuit for outputting a reading signal with a second frequency, which is higher than the first frequency, to the line memory for reading image-captured signals stored in one scanning line from the line memory, wherein the reading signal generating circuit generates the reading signal based on the clock signal generated by the oscillator. The system yet further includes a video signal processing circuit for performing video signal processing on the image-captured signals read with the second frequency from the line memory.

Karasawa provides an endoscope system for displaying two images on a shared monitor. An image signal is read from a CCD 24 using a drive signal from a drive circuit 25a, then amplified and digitized. The resulting digital signal is written sequentially in R, G, and B memories by a memory controller, and read simultaneously by the memory controller, then written in an image memory 26. Moreover, an address generation circuit 25e can generate addresses for normal sized display, or thinned-out address for reduced size display. The thinned

out address is picked up from normal addresses by a counter or frequency divider (see column 3, lines 43-65 and Figure 2 of Karasawa). Thus, the image data is read at the same frequency at which it is written for the normal sized image, or at a lower frequency for the reduced size image.

The Examiner cites column 3, lines 47-65 as providing the claimed feature of outputting a writing signal with a first frequency to a line memory, and outputting a reading signal with a second frequency, which is higher than the first frequency, to the line memory. Applicants' submit that the cited passages have been misinterpreted by the Examiner.

Karasawa merely discloses that the image data read from the image memory 26 is converted to an analog signal by a D/A converter, then converted into NTSC video components, and mixed with a synchronizing signal at a mixer MW (Figure 2) to generate an NTSC composite signal (column 3, lines 38-47). Therefore, the passage at column 3, lines 47-65 of Karasawa merely indicates that an additional video signal from a child scope can be superimposed with the video signal sent from the image memory 26 to provide a mixed signal to a monitor to display endoscope images 29a and 29b simultaneously. (Figures 3b and 3c).

Accordingly, there is simply no disclosure or suggestion of Applicants' claimed invention, which provides the advantage that different types of CCDs that are driven at different frequencies can be accommodated. In particular, clock conversion is performed in the line memory so that only one type of clock signal processing need be performed within the camera control unit CCU. Complicated signal processing in the CCU is thereby avoided.

Loonen discloses a pick-up and/or display device. The device includes a memory in which a video signal is written at a write frequency under the control of a clock and is read therefrom at a read frequency. Image expansion or image compression can thus be realized. The

clock, the input of which is connected to a synchronizing pulse generator, includes an oscillator having an adjustable frequency. The clock further includes an oscillator output constituting a clock output and is connected to a frequency divider whose output signal is applied to an integrating comparator circuit, an output signal variation of which is proportional to a difference between a mean input signal and a predetermined reference voltage. The comparator circuit is connected to a frequency set input of the oscillator. The oscillator includes a trigger input, which serves to switch the oscillator on and off and which constitutes the clock input. A clock of this kind exhibits an accurate phase relationship with the synchronizing signal, which is not subject to temperature drift and noise. The frequency of the clock can be accurately adjusted by adjustment of the reference voltage.

In contrast, Applicants' invention recites, in part, an image pickup system for capturing the image of a subject that includes a frequency dividing circuit which divides a clock signal to generate a signal for a drive circuit which enables the drive circuit to generate the drive signal, wherein the frequency dividing circuit is provided in the endoscope, and a writing signal generating circuit for outputting a writing signal with the first frequency to the line memory for writing the image-captured signal to the line memory, wherein the writing signal generating circuit generates the writing signal based on the signal generated by frequency dividing circuit.

In view of the foregoing, it is respectfully submitted that Karasawa and Loonen, whether taken alone or in combination, do not teach or suggest the subject matter recited in Applicants' independent claim 4 as these references fail at least to teach or suggest an image pickup system for capturing the image of a subject that includes a frequency dividing circuit which divides the clock signal to generate a signal for the drive circuit which enables the drive circuit to generate the drive signal, wherein the frequency dividing circuit is provided in the endoscope, and a

writing signal generating circuit for outputting a writing signal with the first frequency to the line memory for writing the image-captured signal to the line memory, <u>wherein the writing signal generating circuit generates the writing signal based on the signal generated by frequency dividing circuit.</u>

Independent claim 7 has been amended to recite similar features as independent claim 4, and therefore is patentably distinct over Karasawa and Loonen for at least the reasons discussed in connection with claim 4.

Claim 5, which depends directly from the independent claim 4 incorporates all of the limitations of that independent claim and is therefore patentably distinct over Karasawa and Loonen for at least those reasons provided for claim 4.

<u>Rejection of Claims 6 under 35 U.S.C. §103(a)</u>

The Office Action states that the combination of Karasawa and Loonen does not teach superimposing position control means for controlling a superimposing position of the superimposing means in accordance with an image pickup element self-contained in the connected image pickup unit. However, the Office Action states that Saeger teaches this limitation.

As previously discussed, Karasawa and Loonen, whether taken alone or in combination do not teach or suggest the subject matter recited in Applicants' independent claim 4.

Further, because Karasawa and Loonen do not teach or suggest the subject matter recited in independent claim 4, and because Saeger does not teach or suggest the elements of claim 4 that Karasawa and Loonen are missing, Saeger is irrelevant.

In view of the foregoing, it is respectfully submitted that Karasawa, Loonen, and Saeger, whether taken alone or in combination, do not teach or suggest the subject matter recited in claim 4.

Claim 6, which depends indirectly from the independent claim 4, incorporates all of the limitations of independent claim 4 and is therefore patentably distinct Karasawa, Loonen, and Saeger for at least those reasons provided for independent claim 4.

Conclusion

In view of the foregoing, applicants respectfully requests reconsideration, withdrawal of all rejections, and allowance of all pending claims in due course.

Respectfully submitted,

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